AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior listings, and all prior versions, of claims in the application.

LISTING OF CLAIMS:

1. - 5. (Cancelled)

6. (New) An ultrasonic imaging device for transmitting/receiving ultrasonic pulse to/from a living body in which microbubbles for contrast are introduced, and forming a contrast image of the inside of the living body, comprising:

a transmit beamformer for generating a transmit pulse;

a receive beamformer for generating a time-series reception echo signal with adding receive signals, to each of which a delay time is given for generating receiving sensitivity having directivity;

an adder for summing the time-series reception echo signals; and

a transmit/receive sequence controller for controlling the transmit beamformer and the receive beamformer;

wherein the transmit/receive sequence controller controls the transmit beamformer and the receive beamformer to perform transmitting/receiving operations N times (N= an integer of three or greater) by controlling a sampling frequency of the transmit pulse being an integer-multiple of N with respect to a maximum frequency of frequency components of the transmit pulse, and N pieces of transmission pulse waves having a common envelope signal and different waveforms under a transmission/reception wave focus condition, and controlling

carrier waves of the transmission pulse waves so as to vary in phase by 360°/N from one wave to a next wave, and receiving returned ultrasonic waves as N pieces of the time-series reception echo signals; and

wherein said adder sums the N pieces of the time-series reception echo signals so as to output an output signal as a signal indicative of a spatial distribution of the microbubbles.

7. (New) The system ultrasonic imaging according to claim 6, wherein the transmit beamformer includes a D/A converter, and a sampling frequency of an output signal of the D/A converter is an integer-multiple of N with respect to the maximum frequency of frequency components of the transmit pulse.

8. (New) An ultrasonic imaging device for transmitting/receiving ultrasonic pulse to/from a living body in which microbubbles for contrast are introduced, and forming a contrast image of the inside of the living body, comprising:

a transmit beamformer for generating a transmit pulse;

a receive beamformer for generating a time-series reception echo signal with adding receive signals, to each of which a delay time is given for generating receiving sensitivity having directivity;

an adder for summing the time-series reception echo signals; and

a transmit/receive sequence controller for controlling the transmit beamformer and the receive beamformer;

wherein the transmit/receive sequence controller controls the transmit beamformer and the receive beamformer to perform transmitting/receiving

operations N times (N= an integer of three or greater) by controlling N pieces of transmission pulse waves having a common envelope signal and different waveforms under a transmission/reception wave focus condition, and controlling carrier waves of the transmission pulse waves so to vary in phase by 360°/N from one wave to a next wave, and receiving returned ultrasonic waves as N pieces of the time-series reception echo signals, and said adder sums the N pieces of the time-series reception echo signals so as to output an output signal as a signal indicative of a spatial distribution of the microbubbles; and

wherein the transmit pulse wave has a waveform formed by summing a fundamental wave and the second-order harmonics associated with the fundamental wave.

9. (New) An ultrasonic imaging device for transmitting/receiving ultrasonic pulse to/from a living body in which microbubbles for contrast are introduced, and forming a contrast image of the inside of the living body, comprising:

a transmit beamformer for generating a transmit pulse;

a receive beamformer for generating a time-series reception echo signal with adding receive signals, to each of which a delay time is given for generating receiving sensitivity having directivity;

an adder for summing the time-series reception echo signals; and

a transmit/receive sequence controller for controlling the transmit beamformer and the receive beamformer;

wherein the transmit/receive sequence controller controls imaging with selectively changing two sequences, in the first sequence of which by performing

transmitting/receiving operations N times (N= an integer of three or greater) by controlling N pieces of transmission pulse waves having a common envelope signal and different waveforms under a transmission/reception wave focus condition, and controlling carrier waves of the transmission pulse waves so to vary in phase by 360°/N from one wave to a next wave, and receiving returned ultrasonic waves as N pieces of the time-series reception echo signals, and said adder sums the N pieces of the time-series reception echo signals so as to output an output signal as a signal indicative of a spatial distribution of the microbubbles; and

wherein in the second sequence of which by performing transmitting/receiving operations twice by controlling transmission pulse waves having a common envelope signal under a transmission/reception wave focus condition, and controlling carrier waves of the transmission pulse waves different in phase by 180 degree from each other, and receiving returned ultrasonic waves as two of the time-series reception echo signals, and said adder sums two of the time-series reception echo signals so as to output an output signal as a signal indicative of a spatial distribution of the microbubbles.

10. (New) The ultrasonic imaging system according to claim 9, wherein the transmission amplitude in the first sequence is different from the transmission amplitude in the second sequence.

11. (New) The ultrasonic imaging system according to claim 10, wherein the transmission amplitude in the first sequence is larger than the transmission amplitude in the second sequence.

12. (New) The ultrasonic imaging system according to claim 10, wherein both of the output signals obtained in the first sequence and the second sequence are output together.